

2023



Missouri Deer Season Summary & Population Status Report



Missouri Department of Conservation

Prepared by:

Deer and Wildlife Health Program Staff

Science Branch

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Deer Program Mission and Vision

The mission of MDC's Deer Program is to use science-based wildlife management to maintain biologically and socially balanced deer populations that provide sustainable recreation and that minimize conflicts with humans and the potential for negative impacts on ecosystem health. To put this mission into action, the Deer Program is guided by four management goals:

Goal 1: Deer Population Management – Proactively manage deer populations for a balanced sex and age structure while maintaining densities at or below the biological and social carrying capacity within the defined management units using science-based wildlife management practices.

Goal 2: Hunting and Recreation – Provide opportunities for all citizens to enjoy deer and related recreational activities and promote hunting as a socially and culturally important tradition which is the primary tool for achieving deer population goals.

Goal 3: Health and Disease Management – Ensure the maintenance of healthy deer populations and minimize the threat and impacts of disease on deer populations in Missouri.

Goal 4: Education, Communication, and Public Engagement – Provide adequate information to the public about all aspects of deer management in Missouri and create opportunities for additional public engagement in decisions about the management of Missouri's deer resource.

The Deer Program, managed by the Science Branch within MDC, develops annual regulation recommendations based on harvest data, hunter and landowner surveys, MDC staff surveys, public comments, population models, and the Chronic Wasting Disease (CWD) Surveillance and Management Plan. The conservation of all of Missouri's valuable wildlife is made possible thanks to private landowners and all others supporting the one-eighth of one percent Conservation Sales Tax, permit sales, and income generated by fish and wildlife tourism.

Thank you!



Equal Opportunity to Participate

Equal opportunity to participate in, and benefit from, programs of the Missouri Department of Conservation is available to all individuals without regard to their race, color, nationality, sex, age, or disability. Questions should be directed to the Department of Conservation, PO Box 180, Jefferson City, MO 65102, 573-751-4115 (voice) or 800-735-2966 (TTY), or to the U.S. Fish and Wildlife Service Division of Federal Assistance, 4401 N. Fairfax Drive, Mail Stop: MBSP-4020, Arlington, VA 22203.

Statewide Deer Management Overview

Deer populations across much of Missouri are currently at desired levels; however, many counties have steadily increasing deer numbers. Therefore, statewide deer management goals are largely focused on stabilizing deer numbers through increased antlerless harvest to prevent deer populations from becoming undesirably high. Additionally, programs such as the Deer Management Assistance Program (DMAP) have been created to assist landowners in meeting local deer management objectives (see Pg. 23 for more information). Statewide deer management also continues to be focused on minimizing the impacts of CWD. Surveillance for CWD is ongoing across the state to detect new areas of infection as early as possible. Where CWD is known to occur, large-scale and localized management is conducted to limit disease spread and protect Missouri's deer population.

2023 Deer Season Summary

Season	Dates	What Was New for 2023
Archery Deer and Turkey Season	Sept. 15 - Nov. 10, 2023 Nov. 22, 2023 - Jan. 15, 2024	- Two new portions were added to firearms deer season. The Early Antlerless Portion was open in designated counties Oct. 6-8, and the CWD Portion was open in the CWD Management Zone Nov. 22-26, 2023. - Bollinger, Caldwell, Carroll, Clay, Clinton, Dallas, Grundy, Jasper, Livingston, Madison, Montgomery, Pemiscot, Ray, and Schuyler counties were added to the CWD Management Zone. - During Nov. 11-12, hunters who harvested a deer in designated CWD Management Zone counties were required to take the deer (or its head) on the day of harvest to a mandatory CWD sampling station. - The antler-point restriction was removed from Caldwell, Carroll, Clinton, Grundy, Livingston, Montgomery, Ray, and Schuyler counties. - The number of Firearms Antlerless Deer Hunting Permits hunters may fill increased from two to four for most counties. - Hunters could fill one Firearms Antlerless Deer Hunting Permit in Butler, Carter, Scott, and Wayne counties, and could fill two Firearms Antlerless Deer Hunting Permits in Bollinger County. - Reynolds County was open during the Antlerless Portions of firearms deer season, and qualifying landowners in Reynolds County could receive two Resident Landowner Firearms Antlerless Deer Hunting Permits. - Hunters could use dogs to track wounded deer and turkeys.
Firearms Deer Early Antlerless Portion	Oct. 6 - 8, 2023	
Firearms Deer Early Youth Portion	Oct. 28 - 29, 2023	
Firearms Deer November Portion	Nov. 11 - 21, 2023	
Firearms Deer CWD Portion	Nov. 22 - 26, 2023	
Firearms Deer Late Youth Portion	Nov. 24 - 26, 2023	
Firearms Deer Late Antlerless Portion	Dec. 2 - 10, 2023	
Firearms Deer Alternative Methods Portion	Dec. 23, 2023 - Jan. 2, 2024	

The 2023 deer season harvest total of 326,448 set a new record, surpassing the previous record of 325,457 set in 2006 (**Table 1**). The harvest total was 9% higher than the previous year and 11% higher than the previous five-year average. The antlered buck harvest total (147,850) also set a record, and doe harvest (149,504) was the third highest on record. Last year was the first time that doe harvest exceeded antlered buck harvest since 2013. The 2023 deer season was also the inaugural year for the Early Antlerless Portion and the CWD Portion of firearms deer season (**Table 1**).

Firearms Deer Season Summary

Firearms deer harvest (268,444) was 11% higher than during 2022, primarily due to the addition of the new Early Antlerless and CWD Portions of firearms deer season. Cumulatively, these new season portions resulted in the harvest of over 28,000 deer (**Table 1**). Harvest during the 2023 deer season was down during the Early Youth Portion (-19%) and up during the Late Youth Portion (+26%). Because these season portions are relatively short, it is not uncommon to see large fluctuations in harvest from year to year, owing largely to the effects of weather on deer movement and hunter participation. Although harvest was down slightly (-3%) during the November Portion compared to the 2022 season (when weather was ideal during nearly the entire season portion), it was slightly (2%) higher than the previous five-year average. Harvest during the Late Antlerless Portion was up 16% from the 2022 season, and harvest during the Alternative Methods Portion was up significantly (43%) from the previous year (**Table 1**). During 2022, Christmas Eve and Christmas Day occurred during the first weekend of the Alternative Methods Portion, and New Year's Eve and New Year's Day occurred during the second weekend. This likely reduced hunter participation and thus harvest in this season portion during 2022.

Table 1. Deer harvest by portion and deer type in Missouri, 2022-2023.

Season Portion	Bucks			Button Bucks			Does			Total		
	2022	2023	Change	2022	2023	Change	2022	2023	Change	2022	2023	Change
Archery	24,140	24,813	3%	4,896	4,389	-10%	27,647	26,529	-4%	56,683	55,731	-2%
Early Antlerless ¹	-	54	-	-	1,789	-	-	14,710	-	-	16,533	-
Early Youth	8,866	6,981	-21%	1,213	855	-30%	3,798	3,434	-10%	13,877	11,270	-19%
November	103,377	105,708	2%	17,058	16,101	-6%	78,680	72,076	-8%	199,115	193,885	-3%
CWD	-	4,713	-	-	1,073	-	-	5,921	-	-	11,707	-
Late Youth	1,298	1,725	33%	322	364	13%	1,250	1,528	22%	2,870	3,617	26%
Late Antlerless ¹	86	128	49%	2,279	2,760	21%	13,876	16,028	16%	16,241	18,916	17%
Alternative Methods	2,358	3,139	33%	978	1,452	49%	5,388	7,905	47%	8,724	12,496	43%
Managed Hunts	610	589	-3%	282	311	10%	1,317	1,373	4%	2,209	2,273	3%
Total	140,735	147,850	5%	27,028	29,094	8%	131,956	149,504	13%	299,719	326,448	9%

¹Antlered bucks taken during this portion had antlers < 3" in length or were harvested using a CWD Management Permit.

Archery Deer Season Summary

The archery deer season harvest increased considerably in 2019, largely due to a calendar shift that gave archers nearly an extra week of hunting during the peak of the rut before the November Portion of firearms deer season opened (**Table 2**). Another increase in archery harvest occurred in 2020 as a result of increased participation during the era of COVID-19 when many businesses were closed, and people were seeking outdoor forms of recreation. In 2020, Archery Any-Deer Permit sales were up 20% compared to 2019 and Archery Antlerless Permit sales were up 26%. Since then, archery harvest has declined steadily, but remains above the 10-year average.

Not surprisingly, archery harvest during 2023 (55,731) declined slightly (2%) compared to 2022 (**Table 1**). Harvest during the archery season in 2023 was the fifth highest on record. The harvest decline that occurred in 2023 was not unexpected given the November Portion occurred a day earlier than the previous year. Because the November Portion will not begin until November 16 during 2024, archers will get five days of additional hunting opportunity prior to the November Portion, and we expect to see a marked increase in harvest compared to the 2023 season.

The 2023 archery deer season marked the eighth year of crossbows being a legal method for all archery hunters in Missouri. MDC began allowing crossbows during the archery season in 2016 to increase hunter participation. During the 2023 archery season, 51% of the deer harvested were taken with crossbows, identical to the two previous years. The percentage of the archery season harvest attributed to crossbows increased each year from 2016-2021 (**Figure 1**), albeit with smaller gains each year, and appears to be plateauing. Allowing crossbows during the archery season has not affected the statewide composition of the archery harvest greatly. During the five years prior to allowing crossbows (2011-2015), the average percentage of antlered bucks, button bucks, and does in the archery harvest was 39%, 11%, and 50%, respectively. Since allowing crossbows, these averages have been fairly similar (43%, 9%, and 48%, respectively) (**Figure 2**).

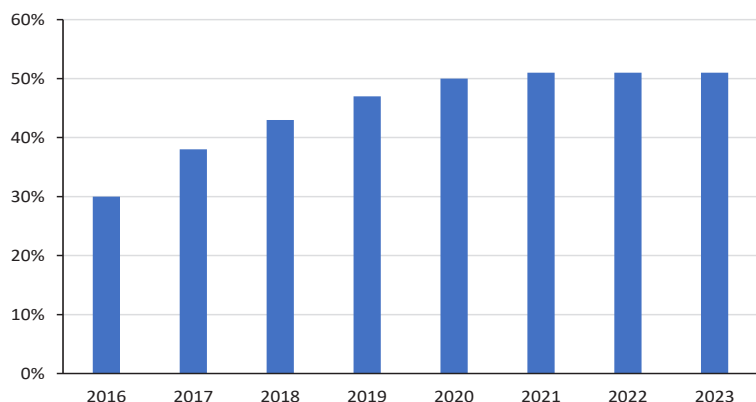


Figure 1. Percentage of the Missouri archery season harvest comprised of deer harvested using a crossbow, 2016-2023. Crossbows became a legal method for all archery hunters to use starting in 2016.

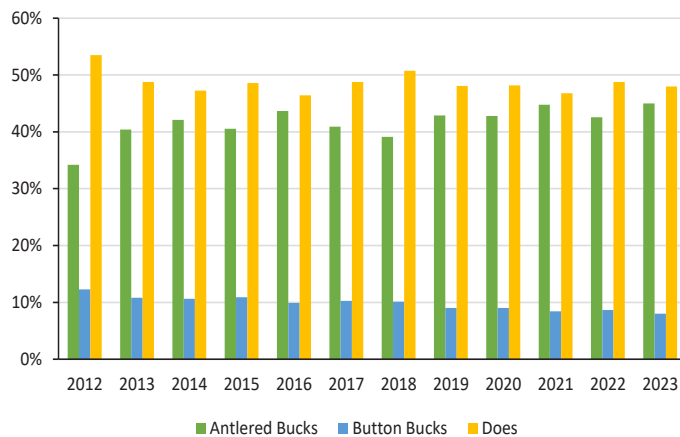


Figure 2. Percentage of antlered bucks, button bucks, and does in the archery deer season harvest in Missouri, 2012-2023.

Deer Hunter and Harvest Trends

In 2023, there were approximately 204,800 archery deer hunters and approximately 451,500 firearms deer hunters. Most archery hunters also hunt during firearms season, so there were a total of about 480,500 deer hunters in 2023. After peaking in 2012 at over 517,600, the number of deer hunters in Missouri has slowly and steadily declined (**Figure 3**). Archery deer hunter numbers peaked a bit later than firearms hunter numbers; however, archery hunter numbers have declined from peak numbers as well. The issue of declining deer hunter numbers is not unique to Missouri. The decline is occurring nationwide as the baby boomer generation ages out of hunting and is replaced at a slower rate by new hunters. This has prompted many R3 (recruitment, retention, and reactivation) efforts in Missouri and elsewhere to try and slow or reverse the trend.

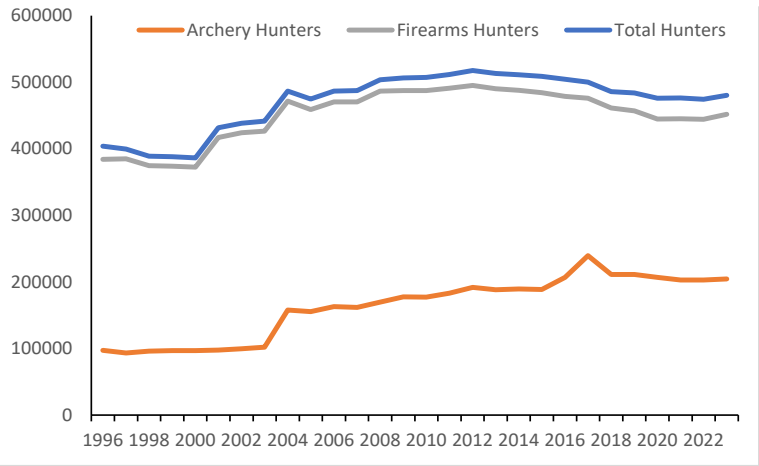


Figure 3. Trends in archery, firearms, and total deer hunter numbers in Missouri, 1996-2023.

Although archery and firearms deer hunter numbers in Missouri have been declining, the rate of decline has slowed in recent years. During 2023, there was even a slight increase (1% and 2%, respectively) in the number of archery and firearms deer hunters (**Figure 3**). Although the reason for the increase in hunter numbers during 2023 is not completely understood, it is possible that the new portions of firearms deer season had an impact on participation, particularly the Early Antlerless Portion. MDC has also increased its efforts to recruit and retain hunters and these efforts could be positively affecting the trajectory of deer hunter numbers in Missouri.

Hunter success (percentage of permitted hunters who reported harvesting at least one deer) during the firearms and archery deer season during 2023 was 44% and 21%, respectively (**Figure 4**). The firearms deer season hunter success rate was the highest it's been in the past decade owing largely to an increasing deer population throughout most of the state. The archery hunter success rate has declined the last several years as the calendar shift has resulted in the November Portion of firearms deer season occurring earlier each year since 2019.

Table 2. Annual deer harvest summary by hunter residency, deer type, and hunting method in Missouri, 2006-2023.

Year	Residency ¹		Deer Type			Method ²		Total
	Resident	Non-Resident	Antlered Bucks	Button Bucks	Does	Archery	Firearm	
2006	308,103	17,167	125,193	47,372	152,892	41,942	281,011	325,457
2007	285,333	17,207	121,059	41,748	139,931	39,698	260,556	302,738
2008	266,599	17,106	100,682	40,574	142,737	42,914	239,094	283,993
2009	284,956	13,835	107,931	43,441	147,687	49,614	247,633	299,059
2010	261,134	14,290	104,794	38,473	132,426	42,467	231,466	275,693
2011	274,695	15,103	114,607	39,697	135,830	49,594	238,700	290,134
2012	293,825	15,713	120,491	42,155	147,214	51,122	256,927	309,860
2013	238,084	13,800	104,853	31,002	116,149	50,140	200,114	252,004
2014	242,020	14,930	114,409	29,943	112,720	48,566	206,885	257,072
2015	264,230	15,430	125,248	32,362	122,294	50,242	228,194	279,904
2016	249,339	16,542	128,311	28,016	110,267	47,734	217,508	266,594
2017	265,682	18,504	136,127	30,602	117,747	51,991	231,124	284,476
2018	269,948	20,119	136,849	30,115	123,260	52,915	235,732	290,224
2019	265,637	20,088	134,092	27,970	123,811	61,407	222,820	285,873
2020	274,746	22,333	140,855	28,652	127,707	67,487	227,833	297,214
2021	270,765	24,240	143,815	26,750	124,578	59,498	233,325	295,143
2022	273,140	24,815	140,735	27,029	131,955	56,683	240,827	299,719
2023	297,580	26,090	147,850	29,094	149,504	55,731	268,444	326,448

¹ Does not include harvests where residency specifications were not available.

² Does not include deer harvested during managed hunts.

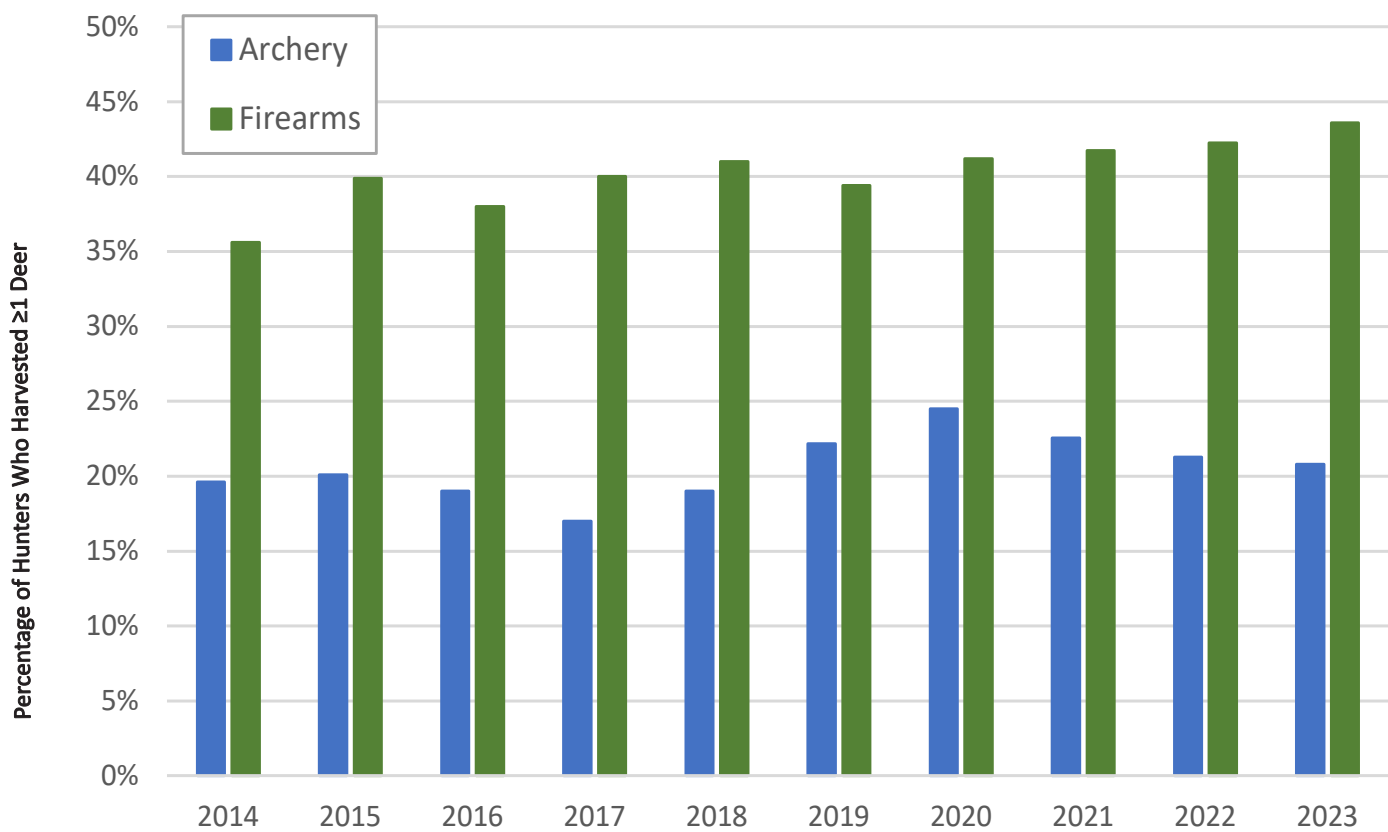


Figure 4. Success rates of firearms and archery deer hunters in Missouri, 2014-2023.

Table 3. Deer observations during the 2023 deer season by archery hunters participating in MDC's bowhunter observation survey.

Region	Hours Hunted	Bucks Seen	Does Seen	Fawns Seen	Unknown Deer Seen	Total Deer Seen per Hour	Does per Buck	Fawns per Doe
Central	4,934	1,424	2,551	1,006	235	1.06	1.79	0.39
Kansas City	4,086	1,304	2,186	1,236	289	1.23	1.68	0.57
Northeast	6,836	2,536	3,609	1,895	590	1.26	1.42	0.53
Northwest	3,305	1,159	1,756	726	221	1.17	1.52	0.41
Ozark	3,361	496	1,545	464	224	0.81	3.11	0.30
Southeast	3,429	495	1,395	528	169	0.75	2.82	0.38
Southwest	3,430	850	1,726	812	164	1.04	2.03	0.47
St. Louis	5,674	991	2,181	963	316	0.78	2.20	0.44
Total (t)/Avg (a)	t = 35,056	t = 9,255	t = 16,949	t = 7,630	t = 2,208	a = 1.01	a = 2.07	a = 0.44

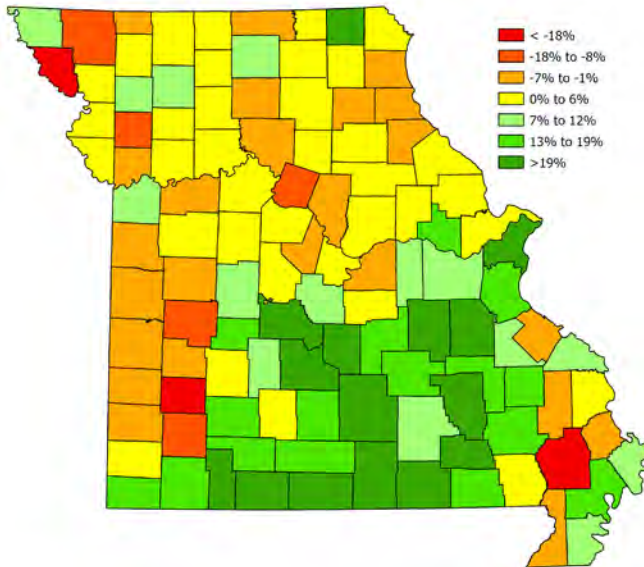


Figure 5. Percent change in total deer harvest in Missouri by county in 2023 compared to the 2022 deer season.

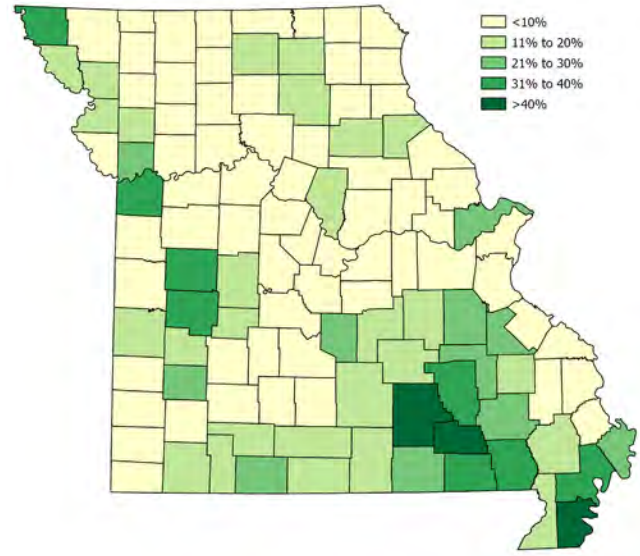


Figure 6. Percentage of deer harvest on public land in Missouri during the 2023 hunting season.

Table 4. Permits issued and deer harvested by permit type in Missouri, 2022-2023.

Permit Type ¹	Number of Permits Issued			Number of Deer Harvested		
	2022	2023	Change	2022	2023	Change
Archery Any-Deer	141,464	140,204	-1%	28,551	28,824	1%
Landowner Archery Any-Deer	53,789	54,982	2%	3,452	3,588	4%
Youth Archery Any-Deer	10,673	10,764	1%	1,694	1,810	7%
Archery Antlerless	80,966	76,101	-6%	18,102	16,641	-8%
Landowner Archery Antlerless	105,970	107,443	1%	3,767	3,695	-2%
Youth Archery Antlerless	5,875	5,473	-7%	890	823	-8%
Firearms Any-Deer	314,870	319,145	1%	95,582	98,829	3%
Landowner Firearms Any-Deer	83,409	82,924	-1%	20,135	21,205	5%
Youth Firearms Any-Deer	57,939	56,772	-2%	21,575	21,349	-1%
Firearms Antlerless	238,940	290,615	22%	75,569	95,649	27%
Landowner Firearms Antlerless	98,683	97,703	-1%	15,380	16,048	4%
Youth Firearms Antlerless	33,400	38,810	16%	9,358	12,170	30%
Resident Firearms	786,413	841,129	7%	219,978	246,238	12%
Non-Resident Firearms	40,828	44,840	10%	17,621	19,012	8%
Resident Archery	377,083	373,241	-1%	49,973	48,470	-3%
Non-Resident Archery	21,654	21,726	<1%	6,483	6,911	7%

¹ Not an inclusive list of permit types.

Table 5. Deer hunter and harvest statistics in Missouri, 2023.

	Archery	Firearms	Archery & Firearms Combined
Age Distribution of Hunters	Number of Hunters		Number of Hunters ¹
10 or younger	3,601	21,533	21,961
11-15	10,735	41,019	42,036
16-40	82,639	169,536	184,533
41 or older	107,838	219,353	231,948
Total hunters	204,813	451,441	480,478
Any-Deer Permits Issued	Number of Permits		Number of Hunters ¹
Resident	134,538	349,439	367,865
Nonresident	17,062	27,915	39,976
Landowner	55,143	83,148	83,604
Antlerless Permit Sales ²	Number of Hunters		Number of Hunters ³
1	43,888	162,657	150,065
2	11,368	46,917	57,836
3	2,306	9,964	17,212
4 or more	1,800	10,089	19,555
Deer Harvested	Number of Hunters		Number of Hunters ⁴
0	162,284	254,634	262,707
1	33,479	145,968	150,265
2	6,740	36,847	44,884
3	1,539	9,627	13,938
4 or more	771	4,365	8,684
Antlered Bucks Harvested ⁵	Number of Hunters		Number of Hunters ⁴
0	180,803	330,193	342,683
1	23,370	120,377	129,222
2	640	871	8,573
Deer Harvested	Percent of Hunters		Percent of Hunters ⁴
0	79.24%	56.40%	54.68%
1	16.35%	32.33%	31.27%
2	3.29%	8.16%	9.34%
3 or more	1.13%	3.10%	4.71%
Antlered Bucks Harvested ⁵	Percent of Hunters		Percent of Hunters ⁴
0	88.28%	73.14%	71.32%
1	11.41%	26.67%	26.89%
2	0.31%	0.19%	1.78%

¹Number of individuals that held an archery and/or firearms any-deer permit.

²Excludes no-cost landowner permits.

³Number of hunters that purchased the specified number of permits when combining their archery and firearms permits.

⁴Number/percent of hunters that harvested the specified number when combining their archery and firearms harvest.

⁵Includes hunters that harvested antlered bucks during managed hunts.

Regional Deer Population Status and Summaries

Statewide deer population trends are important; however, regional trends are more informative to most landowners and hunters. It is also important to recognize that deer populations can vary considerably within a region and even within a county. Regional and local diversity in deer numbers can be a result of differences in land cover and use, harvest regulations, hunter goals and density, and disease events. Therefore, regional information should be considered as a starting point when evaluating deer populations within a localized area.



Regional Offices

Central Region

3500 East Gans Road
Columbia, MO 65201
573-815-7900

Kansas City Region

12405 SE Ranson Road
Lee's Summit, MO 64082
816-622-0900

Northwest Region

701 James McCarthy Drive
St. Joseph, MO 64507
816-271-3100

Ozark Region

551 Joe Jones Blvd.
West Plains, MO 65775
417-256-7161

Southeast Region

2302 County Park Drive
Cape Girardeau, MO 63701
573-290-5730

Northeast Region

3500 S. Baltimore
Kirksville, MO 63501
660-785-2420

Southwest Region

2630 N. Mayfair
Springfield, MO 65803
417-895-6880

St. Louis Region

2360 Highway D
St. Charles, MO 63304
636-441-4554

Central Region Deer Summary

Deer harvest in Central Region (48,577) increased by 5% from 2022 (Table 6, Figure 7) and was the second highest harvest among regions. Deer harvest per square mile (5.9) in the Central Region was second (tie-Northeast) among regions. Top harvest counties within the region were Callaway, Morgan, and Gasconade. The deer population in Central Region has been steadily increasing for about the last decade after a severe hemorrhagic disease outbreak reduced deer numbers significantly across the region in 2012.

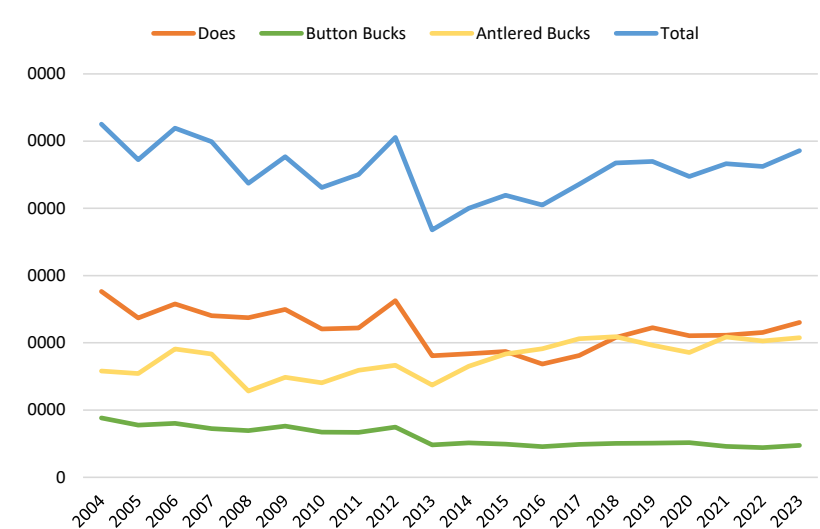


Figure 7. Central Region deer harvest trend, 2004-2023.

Table 6. Central Region deer harvest and hunter density, 2023.

County	Total Harvest	Harvest per Square Mile	Firearms Hunters per Square Mile	Archery Hunters per Square Mile
Audrain	2,634	4.0	5.1	1.4
Boone	3,644	6.0	11.1	3.0
Callaway	5,775	7.4	8.6	3.1
Camden	3,863	6.4	8.7	2.5
Cole	2,049	5.9	10.6	3.5
Cooper	2,587	4.9	6.5	2.1
Gasconade	4,102	8.3	14.3	2.8
Howard	2,441	5.6	10.1	2.7
Maries	2,391	4.7	7.2	1.7
Miller	3,043	5.4	7.4	2.2
Moniteau	1,948	4.9	6.7	2.0
Montgomery	3,645	7.2	10.8	3.7
Morgan	4,291	7.5	7.3	2.3
Osage	3,966	6.8	10.3	2.7
Saline	2,198	3.1	4.5	0.9
Total (t)/Avg (a)	t = 48,577	a = 5.9	a = 8.6	a = 2.4

Kansas City Region Deer Summary

During 2023, 33,626 deer were harvested in the Kansas City Region, which was a 2% increase from 2022 (**Table 7, Figure 8**). Among regions, the Kansas City Region ranked eighth in the number of deer harvested and sixth in the number of deer harvested per square mile (4.7). Top harvest counties within the region were Benton, St. Clair, and Henry. Like in the Central Region, deer numbers have climbed steadily from a low point following the severe hemorrhagic disease outbreak that occurred in 2012.

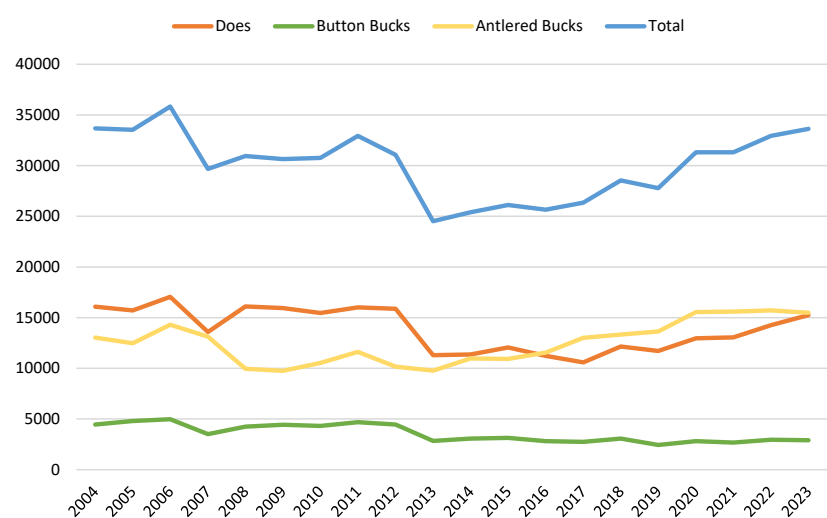


Figure 8. Kansas City Region deer harvest trend, 2004-2023.

Table 7. Kansas City Region deer harvest and hunter density, 2023.

County	Total Harvest	Harvest per Square Mile	Firearms Hunters per Square Mile	Archery Hunters per Square Mile
Bates	2,397	3.1	5.4	1.5
Benton	4,692	7.0	9.3	2.5
Cass	2,662	4.3	5.7	2.3
Clay	1,117	3.7	5.5	3.2
Henry	3,754	6.2	9.5	2.2
Jackson	2,374	6.2	5.1	5.1
Johnson	3,490	4.6	5.7	1.7
Lafayette	1,598	2.7	4.3	1.3
Pettis	3,146	4.9	4.8	1.6
Platte	1,209	3.4	6.2	2.6
St. Clair	3,990	6.3	8.6	2.9
Vernon	3,197	4.5	4.1	1.4
Total (t)/Avg (a)	t = 33,626	a = 4.7	a = 6.2	a = 2.4

Northeast Region Deer Summary

Deer harvest in the Northeast Region during 2023 (44,232) was slightly (1%) higher than it was in 2022 (Table 8, Figure 9). The Northeast Region ranked fourth among regions in deer harvest and ranked second (tie-Central) among regions for the number of deer harvested per square mile (5.9). Top harvest counties were Pike, Macon, and Monroe. Deer numbers in much of the Northeast Region were above objective during the early 2000s. Liberal antlerless harvest opportunities helped to reduce deer numbers during the following decade; however, the severe hemorrhagic disease outbreak that occurred in 2012 reduced deer numbers below objectives across the region. Since the outbreak, deer numbers have slowly increased within the region.

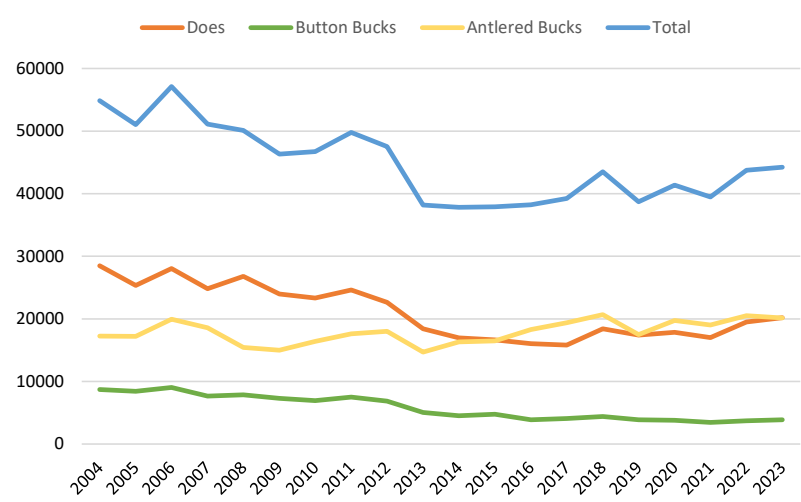


Figure 9. Northeast Region deer harvest trend, 2004-2023.

Table 8. Northeast Region deer harvest and hunter density, 2023.

County	Total Harvest	Harvest per Square Mile	Firearms Hunters per Square Mile	Archery Hunters per Square Mile
Adair	2,823	5.3	8.0	2.2
Clark	2,707	5.7	6.5	1.8
Knox	2,593	5.5	6.2	1.9
Lewis	2,359	5.0	5.9	1.0
Macon	4,746	6.3	6.7	2.3
Marion	2,517	6.2	8.4	1.7
Monroe	3,894	6.4	8.1	2.7
Pike	4,855	7.8	9.8	3.1
Putnam	2,418	5.0	6.7	2.3
Ralls	2,733	6.1	7.5	1.9
Randolph	2,987	6.7	6.8	2.7
Schuyler	1,658	5.7	6.6	2.1
Scotland	2,571	6.2	7.7	1.8
Shelby	2,617	5.6	5.8	2.7
Sullivan	2,754	4.5	6.3	1.5
Total(t)/Avg (a)	t = 44,232	a = 5.9	a = 7.1	a = 2.1

Northwest Region Deer Summary

In 2023, deer harvest in the Northwest Region was 33,964, which was 2% higher than the 2022 harvest total (Table 9, Figure 10). The Northwest Region ranked sixth in total deer harvest and eighth in deer harvest per square mile (3.6). Top harvest counties were Harrison, Daviess, and Linn. Like the Northeast Region, deer numbers in much of the Northwest Region were above objective during the early 2000s. Liberal antlerless harvest opportunities helped to reduce deer numbers during the mid-to-late 2000s; however, the severe hemorrhagic disease outbreak that occurred in 2012 reduced deer numbers below objectives across the region. Additionally, habitat loss within the region during that same timeframe reduced the carrying-capacity of the region to support as many deer as it once did. Conservative harvest regulations have allowed the population to rebound throughout most of the region, however, the deer population in extreme Northwestern Missouri remains below desired levels.

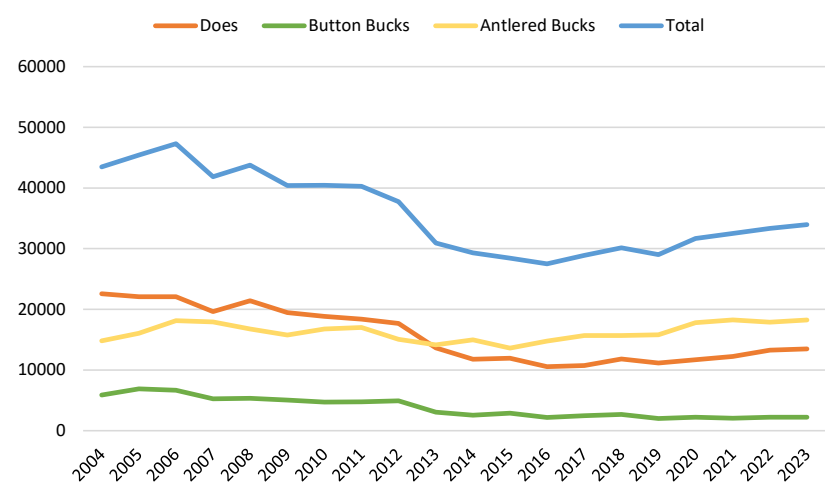


Figure 10. Northwest Region deer harvest trend, 2004-2023.

Table 9. Northwest Region deer harvest and hunter density, 2023.

County	Total Harvest	Harvest per Square Mile	Firearms Hunters per Square Mile	Archery Hunters per Square Mile
Andrew	1,115	2.8	5.8	1.3
Atchison	562	1.1	2.7	0.8
Buchanan	890	2.5	5.4	1.2
Caldwell	1,919	4.8	9.3	2.1
Carroll	2,745	4.3	4.1	1.4
Chariton	2,258	3.4	5.2	1.2
Clinton	889	2.3	6.1	1.5
Daviess	3,015	5.7	6.2	1.6
DeKalb	1,058	2.7	4.6	1.0
Gentry	1,610	3.4	4.2	1.4
Grundy	1,856	4.6	5.2	1.5
Harrison	3,623	5.3	6.0	1.7
Holt	835	2.0	3.8	1.0
Linn	2,973	5.3	6.5	2.4
Livingston	2,153	4.5	6.1	1.8
Mercer	2,109	5.0	5.1	1.5
Nodaway	1,433	1.7	3.1	0.6
Ray	1,746	3.3	6.3	1.5
Worth	1,175	4.6	6.1	1.2
Total (t)/Avg (a)	t = 33,964	a = 3.6	a = 5.4	a = 1.4

Ozark Region Deer Summary

Deer harvest in the Ozark Region during 2023 (49,271) was 28% higher than in 2022 and was a new harvest record for the region (**Table 10, Figure 11**). Deer harvest in the Ozark Region during 2023 was the highest among regions and ranked fourth in harvest per square mile (5.5). Top harvest counties were Howell, Texas, and Oregon. Deer harvest in the Ozark Region can fluctuate considerably on an annual basis (as can other regions in southern Missouri) given the effect that the acorn crop can have on deer movement and thus harvest vulnerability. The large harvest increase in 2023 was the result of the addition of the two new portions of firearms deer season (Early Antlerless Portion, CWD Portion) across much of the region and a poorer acorn crop compared to 2022. The deer population in the Ozark Region has been increasing steadily as it has across much of southern Missouri. Increasing deer numbers have been the result of conservative antlerless regulations that had been put in place to allow the population to increase to desired levels.

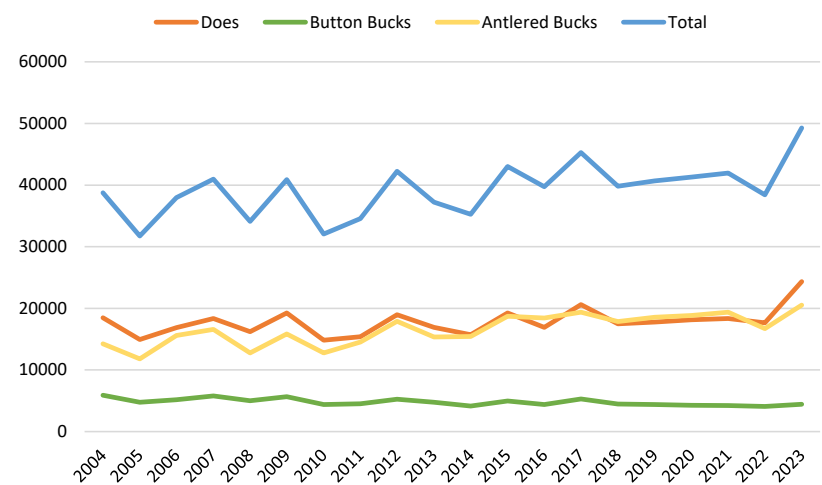


Figure 11. Ozark Region deer harvest trend, 2004-2023.

Table 10. Ozark Region deer harvest and hunter density, 2023.

County	Total Harvest	Harvest per Square Mile	Firearms Hunters per Square Mile	Archery Hunters per Square Mile
Carter	2,942	6.0	7.3	2.0
Dent	3,865	5.2	7.1	1.8
Douglas	4,138	5.2	5.7	1.4
Howell	6,346	7.1	6.8	1.7
Oregon	4,621	5.9	3.9	1.5
Ozark	3,257	4.5	5.1	1.3
Phelps	2,994	4.6	8.7	2.7
Pulaski	3,028	5.9	8.7	3.1
Ripley	3,818	6.4	7.7	1.9
Shannon	4,146	4.2	4.1	1.2
Texas	6,190	5.4	4.8	1.3
Wright	3,926	5.9	5.0	1.3
Total (t)/Avg (a)	t = 49,271	a = 5.5	a = 6.2	a = 1.8

Southeast Region Deer Summary

The total deer harvest within the Southeast Region in 2023 was 35,300, which was 11% higher than in 2022 and was a new record harvest for the region (Table 11, Figure 12). Among regions, Southeast Region ranked fifth in deer harvest and seventh in deer harvest per square mile (4.1). Top harvest counties were Bollinger, Wayne, and Perry. The region has some of the most diverse landscapes in the state, causing the deer population and harvest to vary considerably across the region. Like much of southern Missouri, the deer population in the Southeast Region has been growing steadily to allow the population to reach desired levels.

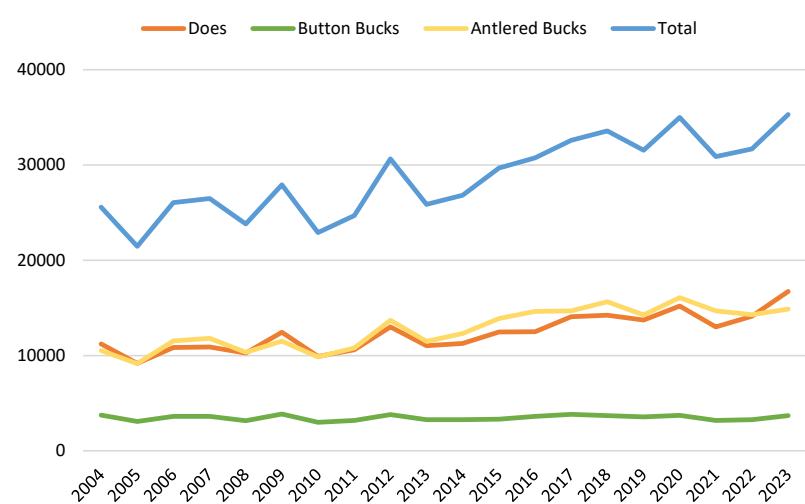


Figure 12. Southeast Region deer harvest trend, 2004-2023.

Table 11. Southeast Region deer harvest and hunter density, 2023.

County	Total Harvest	Harvest per Square Mile	Firearms Hunters per Square Mile	Archery Hunters per Square Mile
Bollinger	4,048	6.8	10.7	3.4
Butler	2,045	3.2	5.0	2.0
Cape Girardeau	3,299	6.1	10.1	2.9
Dunklin	540	1.1	1.3	0.7
Iron	1,843	3.4	4.5	2.2
Madison	2,702	5.6	9.2	1.6
Mississippi	299	0.8	0.8	0.3
New Madrid	405	0.6	1.5	1.0
Pemiscot	220	0.5	1.6	0.9
Perry	3,366	7.4	11.4	2.9
Reynolds	3,135	4.0	4.5	1.2
Scott	914	2.3	4.7	1.4
St. Francois	3,270	8.1	11.6	3.1
Ste. Genevieve	3,042	6.3	12.1	2.8
Stoddard	2,158	2.8	4.2	1.6
Wayne	4,014	5.6	7.3	3.2
Total (t)/Avg (a)	t = 35,300	a = 4.1	a = 6.3	a = 2.0

Southwest Region Deer Summary

During the 2023 deer season, 47,675 deer were harvested in the Southwest Region, which was 9% higher than in 2022 and was a new harvest record (Table 12, Figure 13). The Southwest Region ranked third in total deer harvest among regions and ranked fifth in harvest per square mile (5.1). Top harvest counties were Laclede, Dallas, and Greene. Like the other regions in southern Missouri, deer numbers have been steadily increasing through time in the Southwest Region.

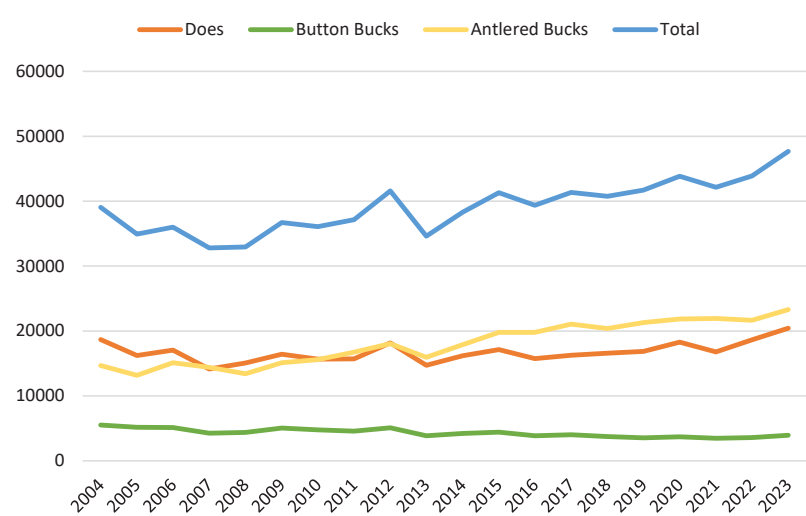


Figure 13. Southwest Region deer harvest trend, 2004-2023.

Table 12. Southwest Region deer harvest and hunter density, 2023.

County	Total Harvest	Harvest per Square Mile	Firearms Hunters per Square Mile	Archery Hunters per Square Mile
Barry	2,855	3.8	4.6	1.4
Barton	1,966	3.6	4.7	1.2
Cedar	2,658	5.8	6.8	2.4
Christian	2,695	5.1	7.3	2.7
Dade	1,787	3.7	4.7	1.3
Dallas	3,442	6.5	8.1	1.6
Greene	3,386	5.9	9.6	5.1
Hickory	2,926	7.5	9.3	2.8
Jasper	2,591	4.7	6.1	2.1
Laclede	4,001	5.4	6.5	1.3
Lawrence	2,116	3.6	5.4	2.0
McDonald	2,294	4.4	6.9	1.5
Newton	3,043	5.2	7.4	1.9
Polk	3,379	5.5	7.3	1.8
Stone	2,387	5.5	6.8	2.6
Taney	2,805	4.9	6.9	2.0
Webster	3,344	5.9	6.5	1.9
Total (t)/Avg (a)	t = 47,675	a = 5.1	a = 6.8	a = 2.1

St. Louis Region Deer Summary

During the 2023 deer season, 33,803 deer were harvested in the St. Louis Region, which was 15% higher than in 2022 and was a new harvest record (Table 13, Figure 14). The St. Louis Region ranked seventh in deer harvest but first in deer harvest per square mile (7.7). Top harvest counties were Franklin, Jefferson, and Lincoln. Deer numbers in the St. Louis Region have been steadily increasing through time.

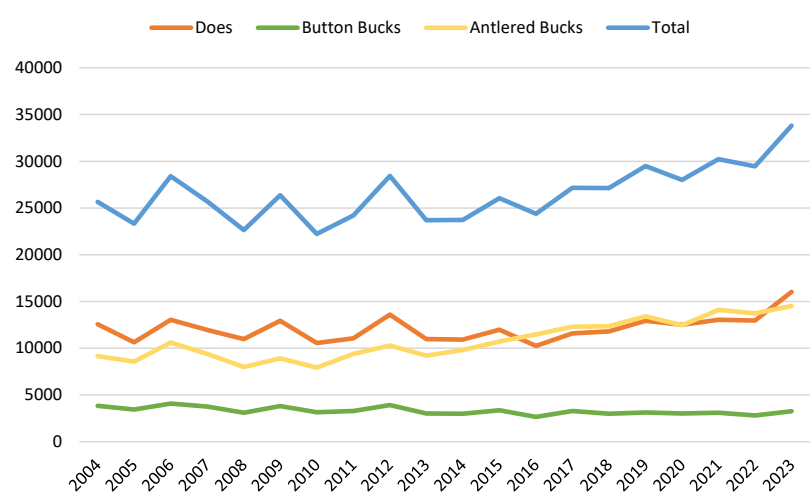


Figure 14. St. Louis Region deer harvest trend, 2004-2023.

Table 13. St. Louis Region deer harvest and hunter density, 2023.

County	Total Harvest	Harvest per Square Mile	Firearms Hunters per Square Mile	Archery Hunters per Square Mile
Crawford	4,406	6.2	8.6	1.9
Franklin	7,397	8.7	10.7	3.0
Jefferson	5,757	10.1	10.8	4.3
Lincoln	4,515	7.9	10.0	2.8
St. Charles	2,297	5.4	7.4	5.0
St. Louis	2,015	9.1	7.0	8.9
Warren	3,310	8.2	9.7	2.8
Washington	4,106	5.6	6.3	2.3
Total (t)/Avg (a)	t = 33,803	a = 7.7	a = 8.8	a = 3.9

County Deer Population Status

Deer populations can be highly variable within a region and even within a county due to variation in habitat availability, harvest regulations, local hunter goals and density, amount of public and private land, and disease outbreaks (e.g., hemorrhagic disease). Therefore, county-wide assessments of deer population trends are not applicable to every local situation but are a general representation of the status and population trend.

The Deer Program evaluates a variety of data to assess county-specific deer populations and for hunting regulation development including:

- **Harvest data** — The total number and composition (antlered bucks, does, and button bucks) of harvested deer.
- **Population data** — Population simulations incorporating age-at-harvest data and estimated survival and reproduction rates.
- **Hunter, landowner, and staff surveys** — Hunters and landowners are randomly selected to receive mail surveys.
- **Public and staff input** — Input is received via email, the MDC website, public meetings, and phone calls.



Survey data are critical when assessing the deer population in relation to public acceptance levels. In cooperation with the USDA, we send out surveys statewide to a sample of agricultural producers to assess perceptions and attitudes toward deer populations and regulations. Additionally, we survey deer hunters annually to estimate hunter effort, hunter density, and opinions concerning deer populations and regulations. We also consider public comments received throughout the year via the web, letters, calls, social media, public meetings, and emails.

The Deer Program reviews this information annually on a county-by-county basis to classify the deer population status and trends. Socially acceptable levels (cultural carrying capacity) are the first thing we look at when classifying the status of the deer population. Although biological carrying capacity, or the landscapes limitations on the number of deer that can be supported, is included within our assessment, cultural carrying capacity is typically much lower than biological carrying capacity. By monitoring population trends for each county, we can gain an understanding of population status and adjust harvest regulations accordingly.



The goal of MDC's Deer Program is to maintain stable deer populations within each county that are at a socially acceptable level for most stakeholders. Currently, deer populations are increasing across most of Missouri and are generally at socially acceptable levels. Exceptions include portions of northwestern Missouri that are still recovering from a severe outbreak of hemorrhagic disease that occurred in 2012 as well as habitat loss due to conversion of grassland to row-crop agriculture. Across most of the state, the deer population has recovered from the population decline that occurred because of the hemorrhagic disease outbreak of 2012.

Table 14. County deer harvest totals by method of take and deer type, 2023.

	Archery				Firearms				Totals			
County	Antlered Buck	Button Buck	Doe	Total	Antlered Buck	Button Buck	Doe	Total	Antlered Buck	Button Buck	Doe	Total
Adair	309	33	207	549	1,175	167	890	2,232	1,489	206	1,128	2,823
Andrew	108	21	99	228	568	58	261	887	676	79	360	1,115
Atchison	76	7	78	161	334	11	56	401	410	18	134	562
Audrain	157	37	164	358	891	292	1,091	2,274	1,048	330	1,256	2,634
Barry	217	44	219	480	1,158	206	1,011	2,375	1,375	250	1,230	2,855
Barton	143	25	158	326	850	127	663	1,640	993	152	821	1,966
Bates	166	30	200	396	999	177	825	2,001	1,165	207	1,025	2,397
Benton	319	51	425	795	1,653	376	1,824	3,853	1,979	439	2,274	4,692
Bollinger	196	73	325	594	1,279	441	1,732	3,452	1,476	514	2,058	4,048
Boone	348	58	383	789	1,268	247	1,340	2,855	1,616	305	1,723	3,644
Buchanan	81	10	63	154	407	49	279	735	488	59	343	890
Butler	216	44	269	529	747	125	637	1,509	968	169	908	2,045
Caldwell	159	13	121	293	881	123	622	1,626	1,040	136	743	1,919
Callaway	376	92	439	907	1,856	501	2,349	4,706	2,255	626	2,894	5,775
Camden	359	46	343	748	1,551	279	1,285	3,115	1,910	325	1,628	3,863
Cape Girardeau	168	30	260	458	1,125	282	1,411	2,818	1,296	314	1,689	3,299
Carroll	187	18	166	371	1,220	176	977	2,373	1,408	194	1,143	2,745
Carter	246	75	424	745	992	174	938	2,104	1,276	260	1,406	2,942
Cass	257	30	245	532	1,077	163	889	2,129	1,334	193	1,135	2,662
Cedar	166	24	181	371	1,113	183	968	2,264	1,289	209	1,160	2,658
Chariton	141	18	109	268	1,050	127	798	1,975	1,202	145	911	2,258
Christian	226	45	223	494	1,087	180	933	2,200	1,314	225	1,156	2,695
Clark	330	18	207	555	948	209	994	2,151	1,278	227	1,202	2,707
Clay	178	20	151	349	403	44	232	679	603	82	432	1,117
Clinton	76	7	47	130	435	52	268	755	514	59	316	889
Cole	130	26	157	313	661	189	880	1,730	794	216	1,039	2,049
Cooper	157	39	176	372	920	182	1,112	2,214	1,077	221	1,289	2,587
Crawford	284	52	284	620	1,664	405	1,716	3,785	1,949	457	2,000	4,406
Dade	113	21	98	232	767	126	660	1,553	881	147	759	1,787
Dallas	236	57	271	564	1,319	306	1,253	2,878	1,555	363	1,524	3,442
Daviess	239	40	280	559	1,128	215	1,112	2,455	1,368	255	1,392	3,015
Dekalb	82	10	71	163	500	61	334	895	582	71	405	1,058
Dent	178	42	257	477	1,330	297	1,761	3,388	1,508	339	2,018	3,865
Douglas	256	50	283	589	1,611	301	1,636	3,548	1,867	351	1,920	4,138
Dunklin	46	11	61	118	251	23	148	422	297	34	209	540
Franklin	508	91	607	1,206	2,797	561	2,784	6,142	3,312	657	3,428	7,397

	Archery				Firearms				Totals			
County	Antlered Buck	Button Buck	Doe	Total	Antlered Buck	Button Buck	Doe	Total	Antlered Buck	Button Buck	Doe	Total
Gasconade	259	41	237	537	1,682	308	1,574	3,564	1,942	349	1,811	4,102
Gentry	138	13	96	247	713	106	543	1,362	852	119	639	1,610
Greene	372	53	335	760	1,234	219	1,134	2,587	1,615	279	1,492	3,386
Grundy	171	20	112	303	777	117	645	1,539	949	138	769	1,856
Harrison	393	26	334	753	1,498	188	1,184	2,870	1,891	214	1,518	3,623
Henry	246	74	332	652	1,268	310	1,519	3,097	1,514	387	1,853	3,754
Hickory	195	35	204	434	1,137	251	1,092	2,480	1,333	288	1,305	2,926
Holt	69	10	95	174	415	35	206	656	487	45	303	835
Howard	147	19	148	314	922	148	1,046	2,116	1,069	170	1,202	2,441
Howell	383	69	406	858	2,245	512	2,729	5,486	2,629	581	3,136	6,346
Iron	99	46	151	296	732	191	624	1,547	831	237	775	1,843
Jackson	391	55	341	787	566	80	366	1,012	1,075	176	1,123	2,374
Jasper	261	24	221	506	1,088	149	848	2,085	1,349	173	1,069	2,591
Jefferson	575	115	755	1,445	1,953	382	1,971	4,306	2,530	497	2,730	5,757
Johnson	280	47	270	597	1,323	256	1,174	2,753	1,626	338	1,526	3,490
Knox	229	21	197	447	954	220	972	2,146	1,183	241	1,169	2,593
Laclede	252	49	297	598	1,602	280	1,521	3,403	1,854	329	1,818	4,001
Lafayette	116	18	96	230	698	98	570	1,366	814	116	668	1,598
Lawrence	188	26	176	390	906	125	695	1,726	1,094	151	871	2,116
Lewis	185	37	168	390	820	213	935	1,968	1,006	250	1,103	2,359
Lincoln	287	68	392	747	1,496	382	1,820	3,698	1,802	460	2,253	4,515
Linn	252	26	222	500	1,255	168	1,016	2,439	1,507	209	1,257	2,973
Livingston	169	15	152	336	986	120	711	1,817	1,155	135	863	2,153
Macon	393	59	377	829	1,881	332	1,672	3,885	2,282	393	2,071	4,746
Madison	117	45	188	350	917	273	1,162	2,352	1,034	318	1,350	2,702
Maries	166	35	163	364	899	211	916	2,026	1,066	246	1,079	2,391
Marion	191	36	191	418	875	202	1,022	2,099	1,066	238	1,213	2,517
McDonald	212	25	129	366	1,041	138	748	1,927	1,254	163	877	2,294
Mercer	253	13	147	413	866	92	738	1,696	1,119	105	885	2,109
Miller	198	32	202	432	1,056	312	1,243	2,611	1,254	344	1,445	3,043
Mississippi	24	6	24	54	177	13	55	245	201	19	79	299
Moniteau	103	29	88	220	652	182	894	1,728	755	211	982	1,948
Monroe	230	54	270	554	1,343	328	1,653	3,324	1,575	385	1,934	3,894
Montgomery	218	52	240	510	1,393	340	1,402	3,135	1,611	392	1,642	3,645
Morgan	301	78	382	761	1,429	392	1,709	3,530	1,730	470	2,091	4,291
New Madrid	32	5	43	80	223	13	89	325	255	18	132	405
Newton	345	34	269	648	1,289	185	895	2,369	1,648	220	1,175	3,043
Nodaway	161	5	101	267	760	52	354	1,166	921	57	455	1,433

	Archery				Firearms				Totals			
County	Antlered Buck	Button Buck	Doe	Total	Antlered Buck	Button Buck	Doe	Total	Antlered Buck	Button Buck	Doe	Total
Oregon	275	59	317	651	1,494	405	2,070	3,969	1,769	464	2,388	4,621
Osage	249	47	273	569	1,333	336	1,728	3,397	1,582	383	2,001	3,966
Ozark	196	24	190	410	1,328	210	1,265	2,803	1,538	241	1,478	3,257
Pemiscot	17	4	21	42	112	14	52	178	129	18	73	220
Perry	87	25	206	318	1,169	312	1,567	3,048	1,256	337	1,773	3,366
Pettis	192	39	280	511	1,146	242	1,247	2,635	1,338	281	1,527	3,146
Phelps	234	52	223	509	1,088	258	1,139	2,485	1,322	310	1,362	2,994
Pike	322	70	382	774	1,549	407	2,112	4,068	1,876	480	2,499	4,855
Platte	178	22	210	410	471	55	272	798	649	77	483	1,209
Polk	242	44	257	543	1,377	257	1,201	2,835	1,619	301	1,459	3,379
Pulaski	275	61	317	653	1,079	210	1,086	2,375	1,354	271	1,403	3,028
Putnam	347	18	235	600	986	109	723	1,818	1,333	127	958	2,418
Ralls	197	32	195	424	941	234	1,133	2,308	1,138	266	1,329	2,733
Randolph	211	33	227	471	1,103	194	1,218	2,515	1,314	227	1,446	2,987
Ray	123	14	86	223	908	116	499	1,523	1,031	130	585	1,746
Reynolds	171	56	263	490	1,039	273	1,333	2,645	1,210	329	1,596	3,135
Ripley	236	45	263	544	1,154	338	1,782	3,274	1,390	383	2,045	3,818
Saint Charles	226	39	231	496	690	143	693	1,526	1,030	221	1,046	2,297
Saint Clair	262	77	366	705	1,543	294	1,447	3,284	1,806	371	1,813	3,990
Saint Francois	192	62	297	551	1,098	329	1,283	2,710	1,291	391	1,588	3,270
Saint Louis	421	71	533	1,025	354	56	297	707	845	167	1,003	2,015
Sainte Genevieve	134	33	197	364	1,267	258	1,152	2,677	1,401	291	1,350	3,042
Saline	139	22	150	311	928	145	814	1,887	1,067	167	964	2,198
Schuyler	163	16	115	294	654	133	576	1,363	818	149	691	1,658
Scotland	255	47	220	522	916	225	908	2,049	1,171	272	1,128	2,571
Scott	61	16	108	185	353	56	320	729	414	72	428	914
Shannon	216	32	227	475	1,304	322	2,014	3,640	1,530	358	2,258	4,146
Shelby	221	31	213	465	889	239	1,024	2,152	1,110	270	1,237	2,617
Stoddard	175	62	326	563	744	153	679	1,576	930	215	1,013	2,158
Stone	198	27	219	444	989	139	815	1,943	1,187	166	1,034	2,387
Sullivan	331	27	242	600	1,172	130	851	2,153	1,504	157	1,093	2,754
Taney	240	27	195	462	1,223	170	950	2,343	1,463	197	1,145	2,805
Texas	334	62	396	792	2,214	448	2,733	5,395	2,548	511	3,131	6,190
Vernon	246	31	301	578	1,323	205	1,091	2,619	1,569	236	1,392	3,197
Warren	222	46	260	528	1,263	264	1,253	2,780	1,485	310	1,515	3,310
Washington	233	70	331	634	1,331	423	1,717	3,471	1,564	493	2,049	4,106
Wayne	300	112	416	828	1,576	307	1,286	3,169	1,888	421	1,705	4,014

	Archery				Firearms				Totals			
County	Antlered Buck	Button Buck	Doe	Total	Antlered Buck	Button Buck	Doe	Total	Antlered Buck	Button Buck	Doe	Total
Webster	238	43	261	542	1,237	289	1,276	2,802	1,475	332	1,537	3,344
Worth	160	10	115	285	485	50	355	890	645	60	470	1,175
Wright	259	58	263	580	1,532	288	1,525	3,345	1,791	347	1,788	3,926
Regional												
Central	3,307	653	3,545	7,505	17,441	4,064	19,383	40,888	20,776	4,755	23,046	48,577
Kansas city	2,831	494	3,217	6,542	12,470	2,300	11,456	26,226	15,472	2,903	15,251	33,626
Northeast	3,914	532	3,446	7,892	16,206	3,342	16,683	36,231	20,143	3,888	20,201	44,232
Northwest	3,038	296	2,494	5,828	15,186	1,916	10,958	28,060	18,245	2,228	13,491	33,964
Ozark	3,088	629	3,566	7,283	17,371	3,763	20,678	41,812	20,522	4,416	24,333	49,271
Southeast	2,035	630	3,155	5,820	12,809	3,063	13,530	29,402	14,877	3,697	16,726	35,300
Southwest	3,844	603	3,713	8,160	19,417	3,330	16,663	39,410	23,298	3,945	20,432	47,675
St. Louis	2,756	552	3,393	6,701	11,548	2,616	12,251	26,415	14,517	3,262	16,024	33,803
Statewide												
Totals	24,813	4,389	26,529	55,731	122,448	24,394	121,602	268,444	147,850	29,094	149,504	326,448

¹Includes deer harvested during managed hunts.

MSU Regenerative Agriculture Project

Launched in the spring of 2023, this is a 4-year, multi-state project led by researchers at Mississippi State University investigating differences between conventional and regenerative agricultural practices used to maintain wildlife food plots. Nine study sites are scattered across Mississippi, Tennessee, and Missouri, each containing several test plots that receive different treatments over the course of the project (**Figure 15**). Conventional plots including conventional warm season (CWS), conventional warm and cool season (CWC), and conventional cool season (CCS) receive annual tillage, soil amendments via liming and fertilization according to soil tests, and herbicide applications to control weed competition. The effect of plant-back interval is also being investigated with one conventional plot planted only during the warm season (CWS), one only in the cool season (CCS) and one planted during both warm and cool season (CWC). One regenerative plot, regenerative purist (RPU) excludes tillage, herbicide, and soil amendments, while the other, regenerative pragmatic (RPR) allows for herbicide treatments as necessary to manage competition. Regenerative treatments receive a diverse seed blend planted with a no-till drill. Additionally, there are four old fields. Two of these fields receive a biennial prescribed fire: one receives spot spraying to manage for early successional vegetation and to control grasses and invasive species (BFS), while the other does not receive spot spraying (BFN). The remaining two fields undergo biennial fall disking: one includes spot spraying (BDS), and the other does not (BDN). These fields are left largely unmanaged, aside from their respective prescribed fire or fall disking.

Within each treatment, measurements of soil heath, nutrient density, and biomass of preferred forage species, deer and turkey use, and time/cost investment are collected. After year 1 of the project, some preliminary results are becoming available, though they may change significantly as additional years of data are collected. Biomass production of planted species was higher in year 1 in conventional plots compared to regenerative plots (**Figure 16**), potentially due to competition from non-planted species in regenerative plots, and deer detections were also greater in conventional compared to regenerative plots (**Figure 17**).



Figure 15. A study site in Missouri with treatment plots laid out to investigate the differences between conventional and regenerative agricultural practices.

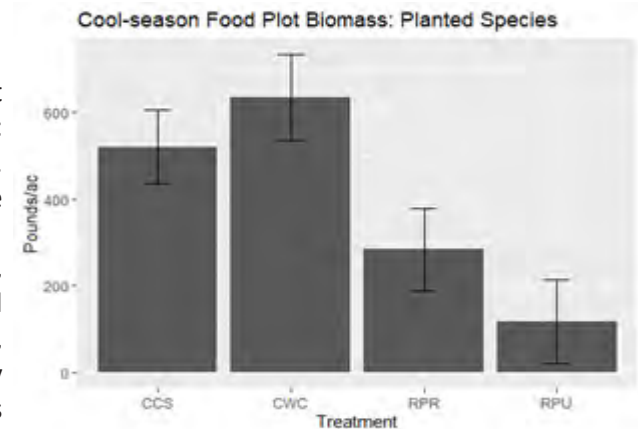


Figure 16. Mean planted species biomass (pounds per acre +/- SE) for the cool-season food plots averaged among all 9 study sites. Cool-season food plot forages were collected 3 times throughout the fall and winter season.

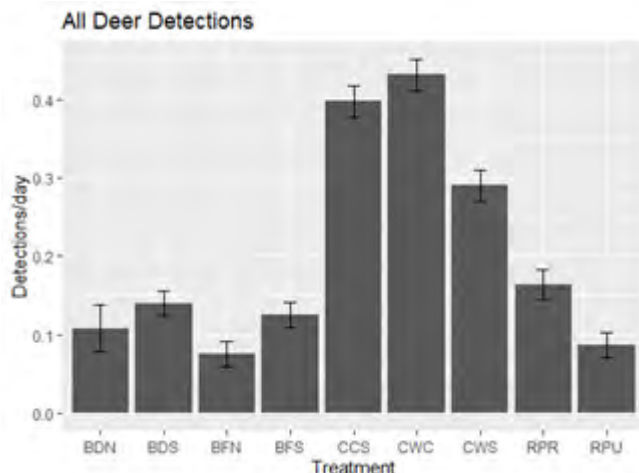


Figure 17. Mean number of total deer detections/day (+/- SE) for all treatments averaged among all 9 study sites.

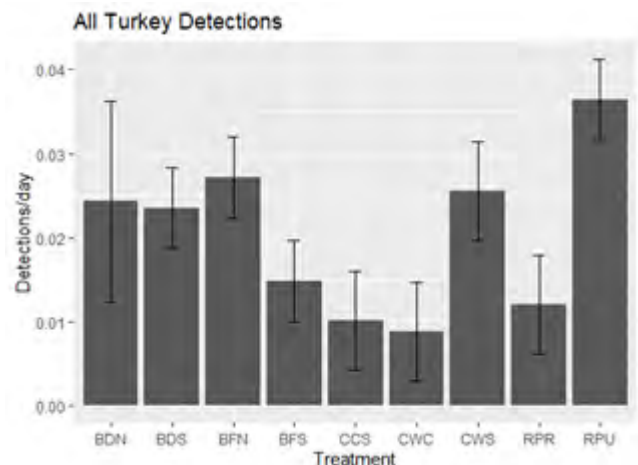


Figure 18. Mean number of total turkey detections/day (+/- SE) for all treatments averaged among all 9 study sites.

MSU Regenerative Agriculture Project, Cont.

Interestingly, turkeys displayed a different use pattern, favoring old fields and treatment plots that provided a more complex vegetative structure (**Figure 18**). Results of this project will help inform everyone from large-scale row crop farmers to those managing food plots recreationally for wildlife as to the most efficient and effective means of accomplishing their goals.

Deer Management Assistance Program (DMAP)

In 2023, MDC completed its fifth year of offering the Deer Management Assistance Program (DMAP) to landowners and hunters. The program is designed to enable landowners to meet deer management goals on their property by offering additional antlerless permits during deer season. Deer management objectives of those seeking to enroll in DMAP generally fall into one of two categories: 1) to reduce damage caused by deer browsing on agricultural, forest, or other plant communities, or 2) to achieve recreational deer management goals. Last year (2023) was the second year that DMAP was offered statewide (**Table 15**). A total of 131 properties were enrolled during 2023, 39 (30%) of which were co-ops involving multiple landowners. One-hundred and one properties (77%) were enrolled to address deer damage concerns and 30 (23%) were enrolled to achieve recreational deer management goals. The total enrolled acreage was approximately 158,653 acres. Fifty-four (47%) counties had at least one property enrolled in DMAP in 2023. Across all enrolled properties, 730 hunters were issued a total of 3,654 DMAP permits, 794 (22%) of which were filled (**Table 15**).

During 2023, MDC staff conducted a review of the DMAP program to improve upon its success in helping landowners achieve their local deer management goals. This review involved consideration of feedback received from DMAP participants over the first four years of the program. As a result of the program review, there are several changes to the DMAP program that will take effect during the 2024 deer season. These include changes to the minimum acreage required to enroll in the program and the timing of when DMAP permits can be used during the hunting season.

Prior to 2024, landowners needed to have at least 500 acres to enroll in DMAP in rural areas and at least 40 acres within municipalities. Additionally, DMAP permits could only be used during the firearms portions of the deer season. Beginning in 2024, the minimum acreage requirement was reduced to 250 acres in rural areas and to 25 acres in municipalities. As in previous years, individual parcels of land, regardless of ownership, may be combined to satisfy the acreage requirement; however, each parcel must be within ½ mile (by air) of the boundary of another parcel being combined to form an enrolled DMAP property. Also new for 2024, DMAP permits may be used during both the firearms and archery portions of the deer season. The annual DMAP enrollment period extends from May 15 through September 15. To learn more about DMAP, visit <https://mdc.mo.gov/dmap>.

Table 15. Summary of 2019-2023 Missouri Deer Management Assistance Program (DMAP) enrollment and harvest data.

	2019	2020	2021	2022	2023
Eligible Counties	7	41	89	114	114
Enrolled Properties	13	28	56	125	131
Enrolled Landowners ¹	23	45	89	251	222
Enrolled Acreage	11,496	36,788	86,182	172,672	158,653
Authorized Permits / Hunters	311 / 89	587 / 147	1,583 / 338	4,146 / 882	3,654 / 730
Filled Permits	96 (31%)	366 (62%)	613 (39%)	1,217 (29%)	794 (22%)

¹Some enrolled properties were comprised of multiple landowners who combined their acreage for DMAP enrollment.

Chronic Wasting Disease Overview

Chronic wasting disease (CWD) is a contagious, fatal disease of deer, elk, and other members of the deer family. It spreads by direct animal-to-animal contact through urine, saliva, feces, and carcass parts of infected animals, and by animal contact with contaminated soil, water, or plant material. There is no known cure, treatment, or vaccine for CWD. Over time, CWD can spread widely and infect a large percentage of a deer population. When CWD becomes widely established, deer survival rates decrease, and population impacts are expected. The best way to manage CWD is to prevent its introduction into new areas and limit its spread.

Routine, statewide CWD surveillance began in Missouri in 2002. Since that time, more than 280,000 deer have been tested for CWD. The disease was first detected in captive deer in Linn County in 2010, in captive deer in Macon County in 2011, and in free-ranging deer in Macon County in 2012. As of June 2024, CWD has been detected in a total of 572 free-ranging deer in 39 counties (**Figure 19**). While the continued spread of CWD into new areas of Missouri is concerning, the percentage of CWD-positive deer where CWD has been found remains low.

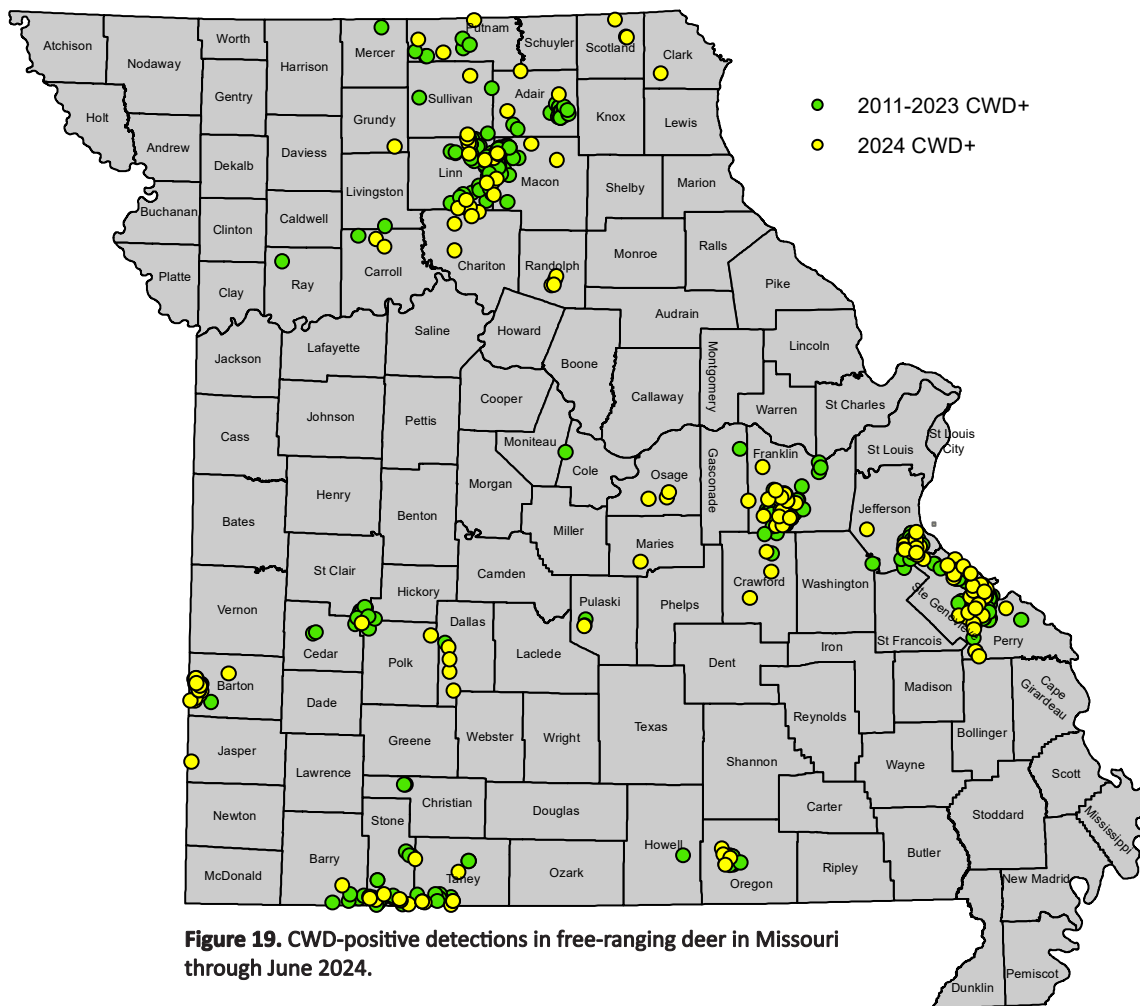


Figure 19. CWD-positive detections in free-ranging deer in Missouri through June 2024.

There have been no known cases of CWD infection in humans, but research is ongoing and potential risks are unknown at this time. The Centers for Disease Control and Prevention (CDC) recommends that hunters have their deer tested before consuming it if hunting in an area where CWD has been found. The CDC also recommends not consuming meat from known CWD-positive animals. For more information, visit <https://www.cdc.gov/prions/cwd/index.html>.

2023-24 CWD Surveillance and Monitoring

More than 37,000 free-ranging deer were tested for CWD across Missouri during the 2023-24 CWD surveillance year (July 1, 2023 - June 30, 2024). Roughly 20,600 deer were tested during mandatory sampling within portions of the CWD Management Zone on opening weekend of the November Portion of firearms deer season. Another 4,658 were sampled through post-season targeted removal (see below). Partnering taxidermists and meat processors collected the majority of the remaining samples. One hundred and seventy sick deer were also sampled during the 2023-24 surveillance year, one of which tested positive for CWD.

Of the deer sampled for CWD during the 2023-24 CWD surveillance year, 162 deer tested positive in the following 27 counties: Adair (3), Barry (1), Barton (15), Carroll (2), Chariton (4), Clark (1), Crawford (3), Dallas (4), Franklin (23), Grundy (1), Jasper (1), Jefferson (15), Linn (9), Macon (7), Maries (1), Oregon (4), Osage (3), Perry (3), Polk (2), Pulaski (1), Putnam (3), Randolph (4), Scotland (3), Ste. Genevieve (31), Stone (7), Sullivan (2), and Taney (9). CWD detections in Chariton, Clark, Grundy, Jasper, Maries, Osage, Randolph, and Scotland Counties were the first detections to date in these counties. The 162 CWD-positive deer included 111 hunter-harvested and 51 removed during post-season targeted removals.

CWD Regulations Update

Regulations intended to slow CWD spread are implemented within CWD Management Zone counties. The CWD Management Zone includes counties within 10-miles of a CWD detection. For 2023-24, the CWD Management Zone included 52 counties (**Figure 20**). Regulations within the CWD Management Zone include a ban on feeding and minerals, mandatory sampling requirements (select counties), removal of the antler-point restriction, carcass transportation restrictions, and more days of firearms deer hunting opportunity.

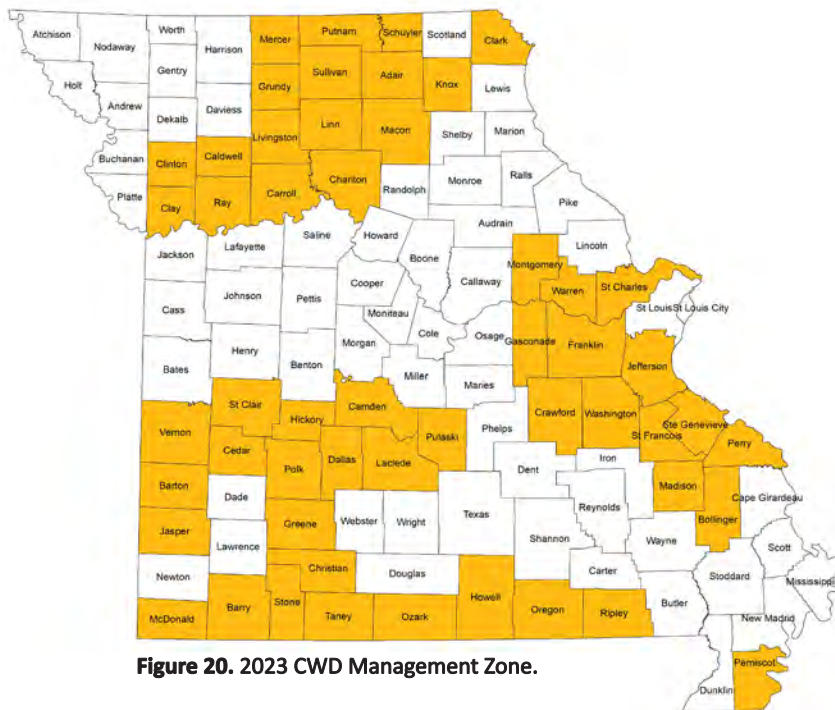


Figure 20. 2023 CWD Management Zone.

Localized CWD Management

CWD Core Areas are designated in localized areas where CWD is detected (**Figure 21**). CWD Core Areas include each section/land grant where a CWD detection occurs along with a 2-section buffer. Increasing deer harvest in CWD Core Areas can slow CWD transmission rates and limit the level of CWD in the environment by lowering deer densities and removing infected deer.

To increase harvest in CWD Core Areas, qualifying landowners are offered no-cost CWD Management Permits, allowing for the harvest of deer of either sex during deer season. During the 2023-24 deer season, 2,659 deer were Telechecked on CWD Management Permits, 1,724 of those deer were sampled for CWD, and 22 of those deer tested positive for CWD.

From January 16 through March 15, 2024 after the close of the deer hunting season, MDC staff worked closely with cooperating landowners to remove additional deer within CWD Core Areas. Post-season targeted removal is one of the only known methods to slow the spread of CWD, and Missouri is one of several states that employs this CWD management approach.

Through the voluntary participation of landowners in CWD Core Areas, 4,658 deer were removed across 33 CWD Core Areas, encompassing roughly 2,450 square miles. These efforts resulted in the removal of 51 CWD-positive deer and lowered deer density in these localized areas to slow the spread of CWD. Landowners removed nearly 1,600 (34%) of the removal total and MDC and USDA Wildlife Services staff removed the remainder. During 2024, MDC established removal goals for each CWD Core Area.

Localized CWD Management (Continued)

The removal goal was met in 20 of the 33 cores and at least 75% of the removal goal was met in 25 of the 33 cores where targeted removal occurred in 2024. Once a removal goal was met for a specific CWD Core Area, removals stopped for the year.

A total of 572 free-ranging CWD positive deer have been detected in Missouri since 2012. Of those CWD positive deer, 213 (37%) have been removed during targeted removal efforts while only accounting for around 8% of the total deer sampled. MDC's approach to aggressively managing CWD is intentional. The work that is being done is necessary to conserve Missouri's deer and elk populations. Surveillance efforts without active management only informs where the disease is present but does not slow the spread of the disease and its impact on the population. Other states and provinces have seen the rate of CWD positive deer in specific areas go from low single digits to approximately 50% in less than 20 years, and some are documenting population declines that are, in part, attributed to CWD. This past year, over 80% of Missouri's CWD positive counties had less than 1% of samples test positive. This low infection rate is a result of MDC working with landowners and partners to aggressively manage the disease through targeted removal.

For more information on post-season targeted removal including CWD Core Area boundaries and removal efforts by year by CWD Core Area, visit <https://mdc.mo.gov/cwd> and select the Post-Season Targeted Removal page. Additional information on surveillance results, CWD Management Permits, and many other aspects of MDC's approach to managing CWD are also available from the CWD homepage.

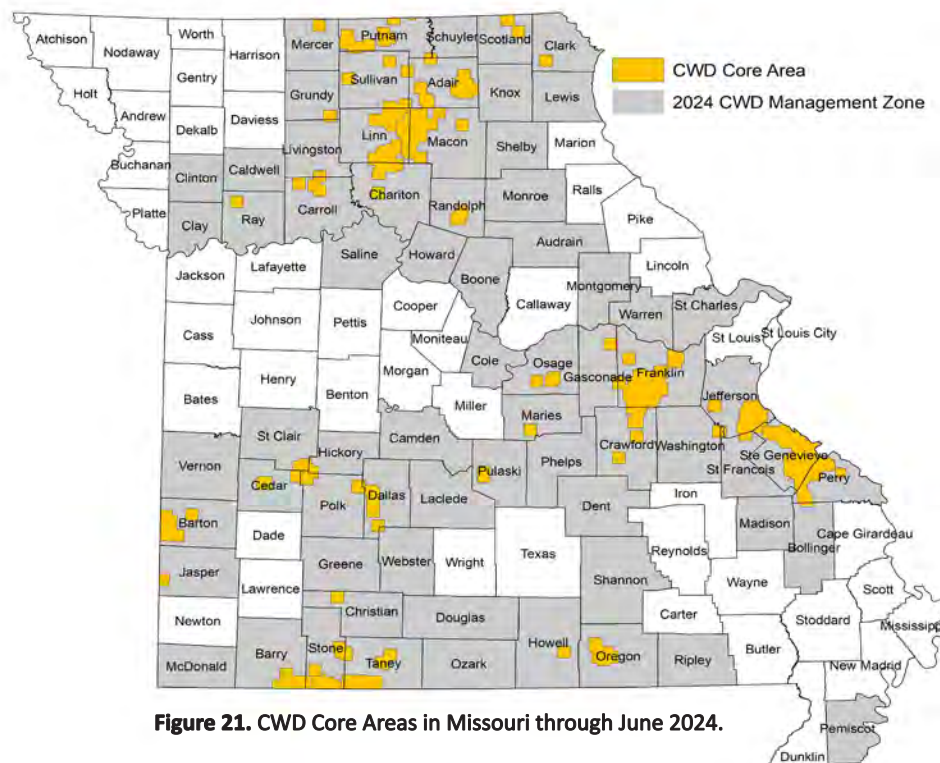


Figure 21. CWD Core Areas in Missouri through June 2024.



Missouri Department of Conservation